

Healthy Homes
Healthy Children

Core Cities Data – PROVIDENCE

Supplement to:

CHILDHOOD LEAD POISONING IN RHODE ISLAND: THE NUMBERS 2004 EDITION

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Introduction

The Rhode Island Childhood Lead Poisoning Prevention Program has a strategic plan to eliminate lead poisoning by 2010 (<http://www.health.ri.gov/hri2010/hri2010plan.pdf>). The main objective of this plan is for each city and town to decrease the proportion of new cases of lead poisoning in children under six years of age to less than 5% without decreasing the availability of lead safe and affordable subsidized housing.

Over the past ten years, new cases of lead poisoning in Rhode Island have been concentrated in cities where, according to the 2000 Census, the child poverty rate is greater than 15%. These cities are designated as “core cities” and include Central Falls, Newport, Pawtucket, Providence, West Warwick, and Woonsocket. For this reason, we are presenting data specific to each of the core cities so that legislators, community leaders, and the public better understand the extent of the lead poisoning problem in these areas.

Understanding the Lead Data

In Rhode Island, children between nine months and six years of age are required by law to be screened for lead poisoning annually. The screening process involves collecting a sample of blood from the child, either from a capillary (finger stick) or a vein (venous test), and analyzing the sample to determine the amount of lead in the blood. Blood lead levels (BLL) are measured and reported as micrograms of lead per deciliter of blood ($\mu\text{g/dL}$). Throughout this document, a case is defined as a child with a blood lead level greater than or equal to 10 $\mu\text{g/dL}$.

Although the state guidelines recommend that children begin to be screened at nine months of age, some children may be screened earlier if they are at high risk for lead poisoning. The data presented here are based on the results of all blood lead tests, both capillary and venous, performed on children from birth to six years of age in the state of Rhode Island from 1994-2003. For the incidence and prevalence analyses, a child is represented once in each year during which he or she was screened. The rates presented in this document are based on the population of children who have been screened for lead, not the entire population of children under six years of age.

With the exception of the lead screening rates, which are taken from the KIDSNET* database, data included in this report come from the Lead Elimination Surveillance System (LESS) from the Childhood Lead Poisoning Prevention Program at the Rhode Island Department of Health.

This report is a supplement to the statewide data book “Childhood Lead Poisoning in Rhode Island: The Numbers 2004 Edition.” For more general information and data, please refer to that document on the Rhode Island Department of Health web site at http://www.health.ri.gov/lead/family/Databook_04.pdf.

We hope that you find these data useful in developing your community’s response to childhood lead poisoning.

If you have any questions, please contact:

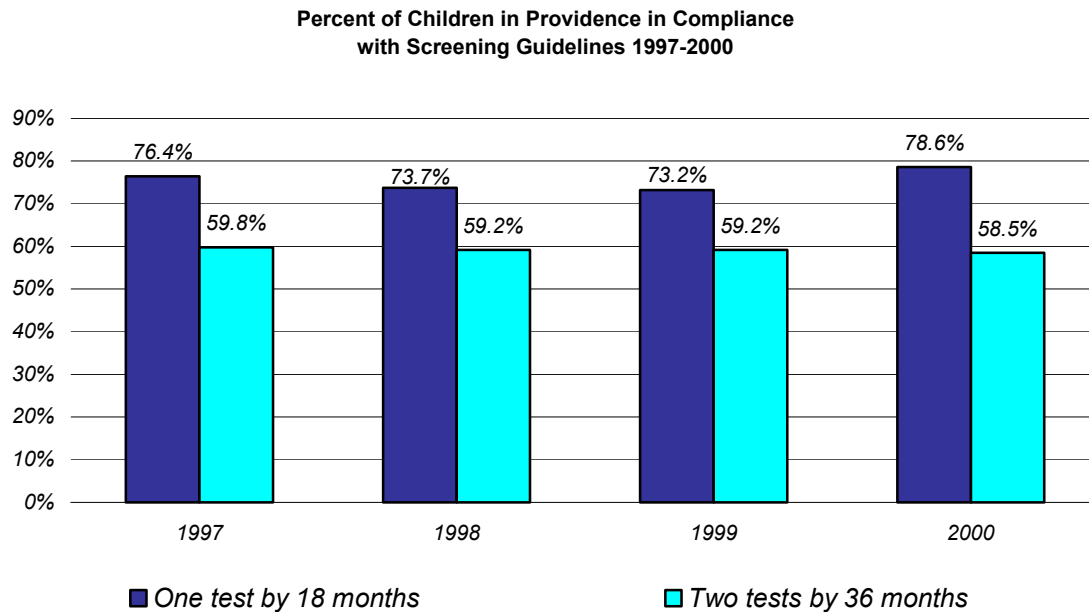
Daniela Quilliam, MPH
Epidemiologist
Rhode Island Department of Health
Childhood Lead Poisoning Prevention Program
Three Capitol Hill
Providence, RI 02908
Phone: (401) 222 – 7730
E-mail: DanielaQ@doh.state.ri.us

* KIDSNET, Rhode Island’s integrated child health information system, contains lead screening information for all children born in Rhode Island since 1997. The data from KIDSNET presented in this report are estimates due to limited address information in the database. The addresses used for these data are the most recent address of the child.

Compliance with Screening Guidelines

All Rhode Island children between nine months and six years of age are required by law to be screened for lead poisoning annually. Compliance with these guidelines is assessed by measuring a) the proportion of children born in a given year (birth cohort) with at least one blood lead test by 18 months of age and b) the proportion of children born in a given year with at least two blood lead tests by 36 months of age.

Figure 1



One Screening Test by 18 Months of Age

Screening children by 18 months of age is important to promptly identify children with elevated blood lead levels and offer interventions. Rhode Island has one of the highest screening rates in the nation. Approximately 70% of children in RI are screened at least once by 18 months of age. This rate has been consistent between 1997 and 2000, the year for which we have the most recent data. The screening rates among children 18 months of age in Providence are consistent with the screening rates statewide.

Two Screening Tests by 36 Months of Age

Compliance with the screening guidelines decreases as children get older. The statewide screening rate drops to approximately 50% when looking at the percent of children with two screening tests by 36 months of age. This rate has been consistent between 1997 and 2000, the year for which we have the most recent data. The average screening rate among children 36 months of age in Providence is 59%, approximately 9% higher than the average statewide screening rate for children in this age group.

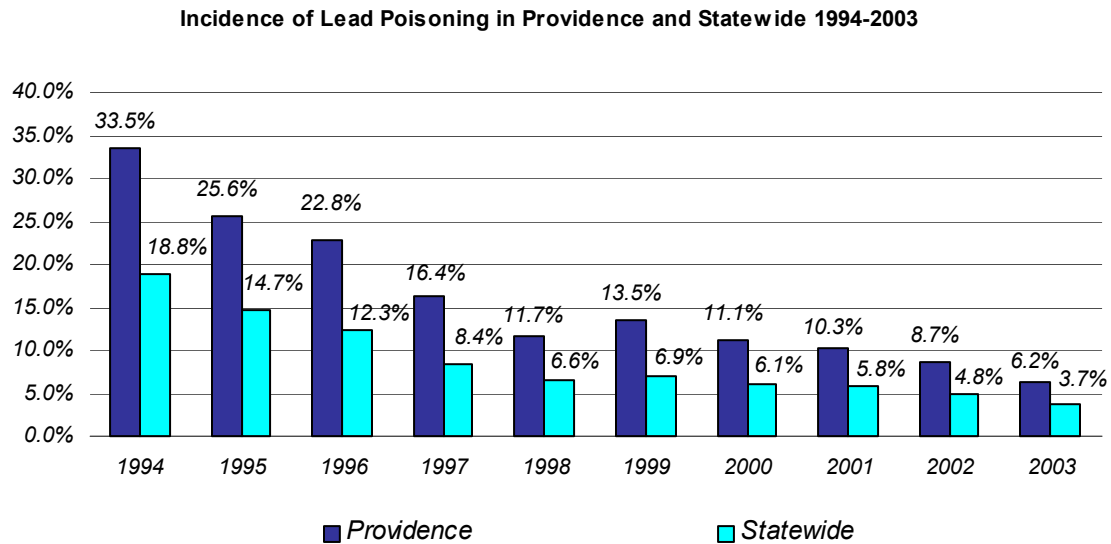
A variety of outreach efforts have been made to achieve this high rate of screening, such as sending reminders to parents to have their children tested at the 12 month well-child visit and providing pediatric practices with lists of unscreened children in their practices between the ages of 22 and 24 months. In addition, many pediatric practices have access to KIDSNET, an electronic database containing preventive health information for all children born in the state since 1997. KIDSNET allows doctors to monitor lead screening rates in their practices.

Although the majority of the population is being screened, efforts must continue to focus on screening children after 18 months of age.

Incidence of Lead Poisoning

The Department of Health tracks and reports the number of newly lead poisoned children (blood lead level ≥ 10 $\mu\text{g/dL}$) among children less than six years of age who have never had an elevated blood lead level in the past. This is known as the incidence rate.

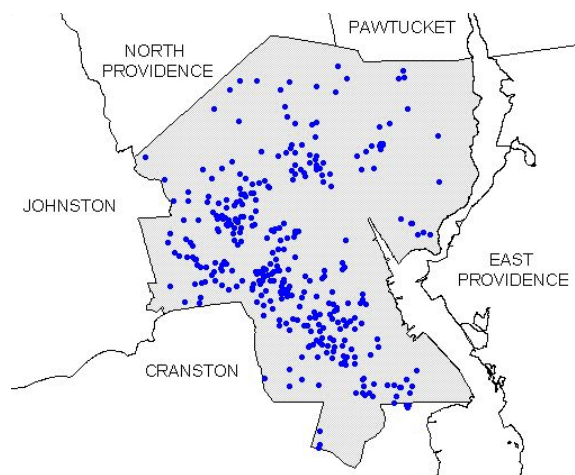
Figure 2



Over the past ten years, the proportion of new cases of lead poisoning among children in Providence has declined from 33.5% in 1994 to 6.2% in 2003. This decline is consistent with the statewide trend over the last ten years.

In spite of the considerable decline in incidence over time, 473 children living in Providence were lead poisoned for the first time in 2003*. As seen in the map below, the cases of lead poisoning in Providence are distributed relatively evenly throughout the city.

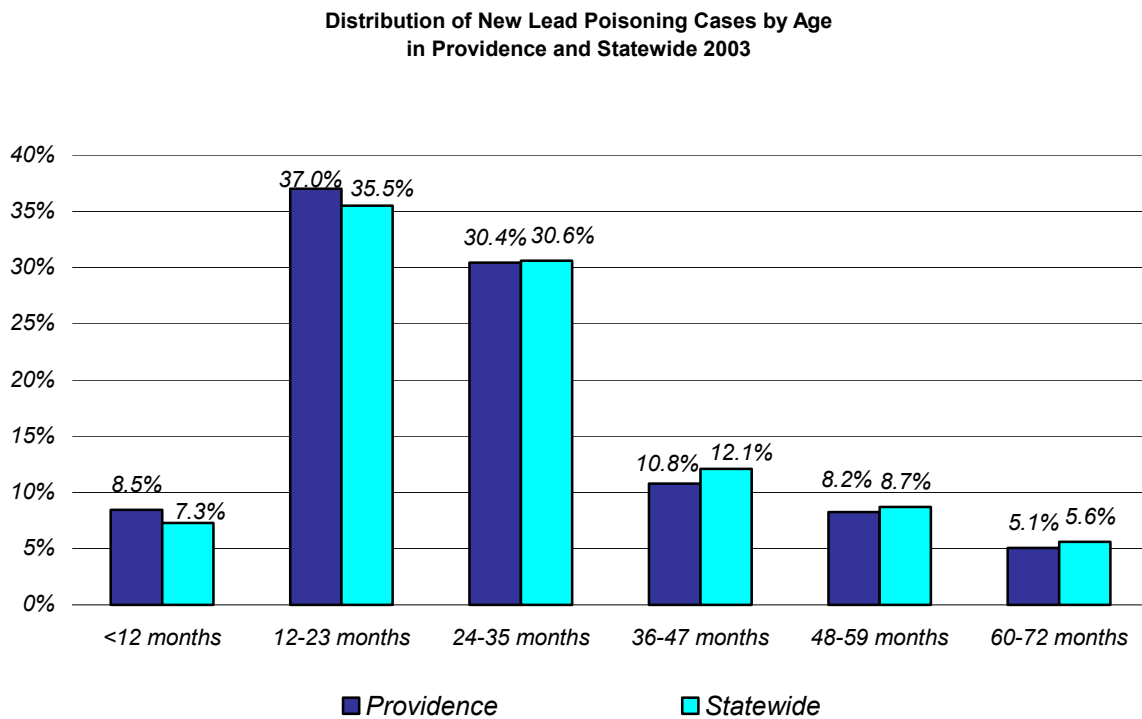
Map of 2003 Incidence of Childhood Lead Poisoning in Providence



* 75 of the newly poisoned children were screened with a capillary test; 398 were screened with a venous test. As of July 1, 2004, the revised screening guidelines require that all capillary tests ≥ 10 $\mu\text{g/dL}$ be followed-up with a venous test.

Incidence of Lead Poisoning by Age

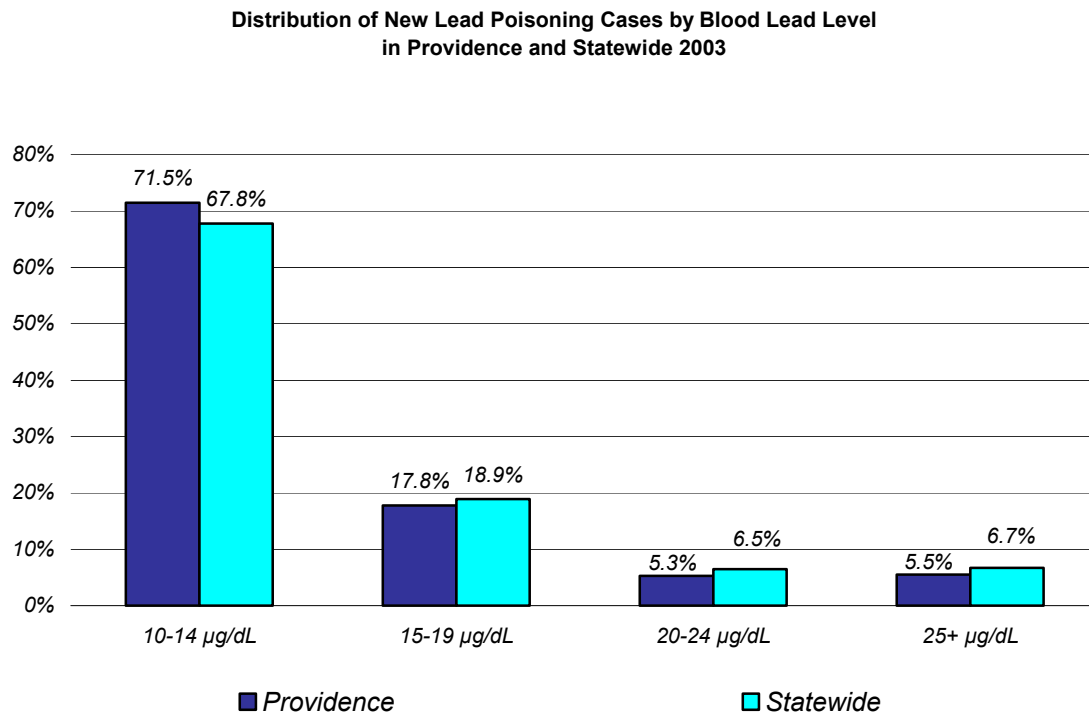
Figure 3



The distribution of newly lead poisoned children by age in Providence in 2003 is similar to the statewide distribution. In Providence and statewide, most of the poisonings occur for the first time among children between 12 and 35 months of age.

Incidence of Lead Poisoning by Blood Lead Level

Figure 4

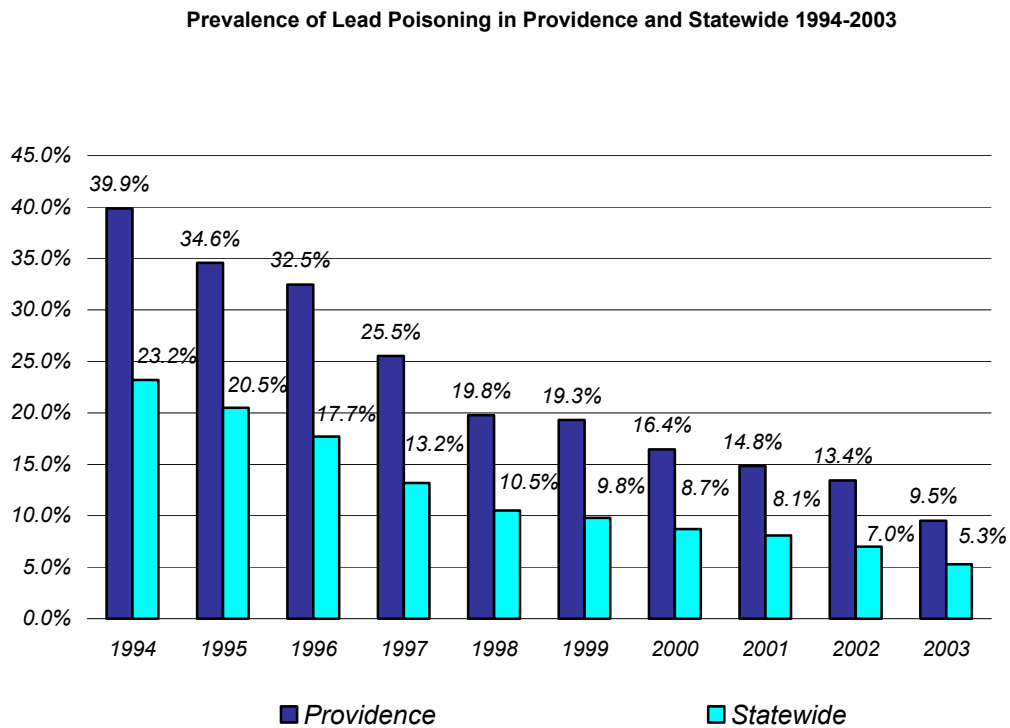


The distribution of newly lead poisoned children by blood lead level in Providence in 2003 follows the same trend as the statewide distribution. In Providence, as well as statewide, lead poisoning is being detected among the majority of children when their blood lead levels are in the 10-14 µg/dL range. This indicates that screening practices are successfully identifying children with elevated blood lead levels before they become highly elevated.

Prevalence of Lead Poisoning

The Rhode Island Department of Health calculates the prevalence of lead poisoning annually. The prevalence rates presented here show the proportion of children with a blood lead level $\geq 10 \mu\text{g/dL}$ in a given year, and include children who had been lead poisoned in the past.

Figure 5

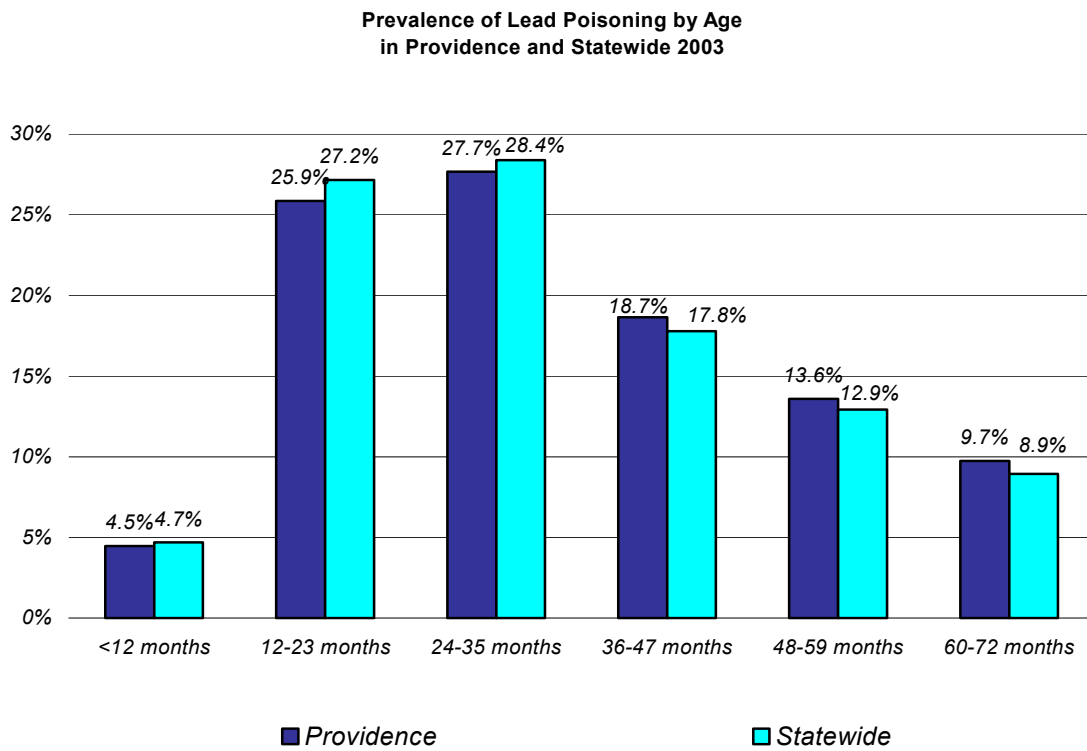


Over the past ten years, the prevalence of lead poisoning among children in Providence has declined from 39.9% in 1994 to 9.5% in 2003. This decline is consistent with the statewide trend over the last ten years.

Although the prevalence of lead poisoning is decreasing over time, a total of 831 children living in Providence had lead poisoning in 2003.

Prevalence of Lead Poisoning by Age

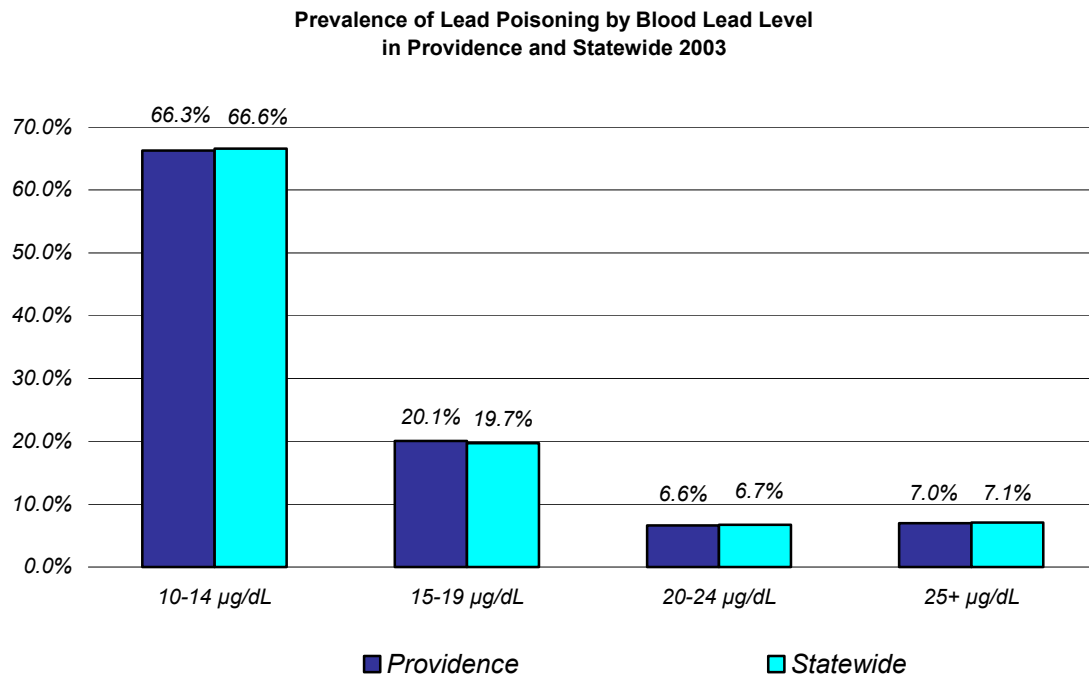
Figure 6



The distribution of children with lead poisoning by age in Providence in 2003 is similar to the statewide distribution, with the majority of lead poisoning affecting children between 12 and 35 months of age.

Prevalence of Lead Poisoning by Blood Lead Level

Figure 7



The prevalence distribution of lead poisoning by blood lead level in Providence in 2003 generally follows the statewide distribution. Approximately two thirds of lead poisoned children in Providence, as well as throughout the state, have blood lead levels in the 10-14 µg/dL range. This indicates that among children who are lead poisoned, few have blood lead levels above 14 µg/dL.

Environmental Inspections Offered

In Rhode Island, environmental inspections are offered to families who have a child with significant lead poisoning (venous test $\geq 20\mu\text{g/dL}$) or persistent lead poisoning (two lead tests between 15-19 $\mu\text{g/dL}$ conducted at least 90 days but less than 365 days apart). These families are offered an environmental inspection at no cost. This inspection includes paint, water, soil, and dust evaluation, and lead hazard assessment. In the case of rental units, the landlord's permission is neither required nor sought for these inspections.

Although inspections are offered to all children with significant or persistent lead poisoning, the inspections may not be performed if the family cannot be located, or they do not respond to letters or phone calls. In addition, inspections are not performed if a child moves, or if the family refuses the inspection.

In 2003, inspections were offered to 95 families in Providence. Inspections were performed in 60 homes. Twelve families refused the inspection, 10 families did not respond to letters and/or phone calls, and an additional ten families could not be located. Two children had moved since the blood test was done, and one inspection is pending.

For more detailed information about environmental inspections offered between 1999 and 2003, see Figure 8.

Figure 8. Environmental Inspections Offered in Providence 1999-2003

	1999	2000	2001	2002	2003
Inspections Offered	207	162	209	153	95
Pending Inspection	0	0	0	0	1
Child Moved	8	8	22	9	2
Unable to Locate	0	0	0	0	10
No Response to Letters, Phone Calls	24	9	15	11	10
Refused Inspection	12	21	37	36	12
Inspections Performed	163	124	135	97	60

Status of Environmental Inspections

An environmental case is opened for each significantly or persistently lead poisoned child who receives an inspection. Once the case is opened, the Department of Health works with the property owner until the entire property, including the interior, exterior, and soil, are abated and free of lead hazards.

In some instances, cases are closed before abatement is complete. This can occur if the parent of the child is the owner of the property or if the property is no longer regulated, such as illegal apartments that have been dismantled, properties that have been converted to commercial use, or properties that have been razed.

Of the 60 environmental cases that were opened in Providence in 2003, 22 are closed. Eighteen of the closed cases have been completely abated, one has been closed because no lead hazards were found, and an additional three have been closed because the parent of the child is the owner of the property. Thirty-eight environmental cases are in various stages of the abatement process and remain open with the Department of Health.

For a breakdown of the status of cases opened in 1999-2003, see Figure 9.

Figure 9. Status of Environmental Inspections in Providence 1999-2003

	1999	2000	2001	2002	2003
Closed Cases	140	103	116	71	22
Lead Hazard Completely Abated	88	76	84	48	18
Abatement Complete Pending Soil Remediation ^Ψ	30	14	0	0	0
No Lead Hazards Found	4	0	2	1	1
No Longer Regulated [*]	2	1	1	1	0
Other	0	1	1	0	0
Parent is Owner of Property- Case Closed After 90 Days	16	11	28	21	3
Ongoing Cases	23	21	19	26	38
Exterior Abated/ Interior Pending	0	0	0	0	1
Interior Abated/Exterior Pending	4	2	3	6	5
Abatement Complete Pending Soil Remediation ^Ψ	0	1	3	1	0
Abatement Complete Pending Water Remediation	0	1	0	1	0
Various Stages of Abatement	19	17	13	18	32
Total Cases	163	124	135	97	60

^Ψ Cases opened after August 1, 2001 remain open until soil remediation is complete.

^{*} Properties no longer regulated include illegal apartments that have been dismantled and properties that have been razed or converted to commercial use.

DATA TABLES

Table 1. Percent of Children in Providence in Compliance with Screening Guidelines 1997-2000

Year Born	Total # Children Born	# Children Screened at Least Once by 18 Months of Age	# Children Screened at Least Twice by 36 Months of Age
1997	2299	1757 (76.4%)	1374 (59.8%)
1998	2375	1750 (73.7%)	1407 (59.2%)
1999	2409	1764 (73.2%)	1425 (59.2%)
2000	2624	2063 (78.6%)	1535 (58.5%)

Table 2A. Incidence of Lead Poisoning in Providence 1994-2003

Year	# Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time	# Children Screened with No Previous Elevated Blood Lead Level	Incidence Rate
1994	2380	7099	33.5%
1995	1712	6695	25.6%
1996	1419	6216	22.8%
1997	1024	6256	16.4%
1998	701	6017	11.7%
1999	849	6304	13.5%
2000	681	6139	11.1%
2001	761	7401	10.3%
2002	618	7144	8.7%
2003	473	7628	6.2%

Table 2B. Incidence of Lead Poisoning Statewide 1994-2003

Year	#Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time	# Children Screened with No Previous Elevated Blood Lead Level	Incidence Rate
1994	5,544	29,559	18.8%
1995	4,070	27,642	14.7%
1996	3,368	27,297	12.3%
1997	2,369	28,125	8.4%
1998	1,870	28,170	6.6%
1999	2,025	29,187	6.9%
2000	1,740	28,419	6.1%
2001	1,857	31,848	5.8%
2002	1,535	31,954	4.8%
2003	1,161	31,579	3.7%

Table 3A. Distribution of New Lead Poisoning Cases by Age in Providence 2003

Age	#Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time	Percent of Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time
<12 months	40	8.5%
12-23 months	175	37.0%
24-35 months	144	30.4%
36-47 months	51	10.8%
48-59 months	39	8.2%
60-72 months	24	5.1%
Total	473	100%

Table 3B. Distribution of New Lead Poisoning Cases by Age Statewide 2003

Age	#Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time	Percent of Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time
<12 months	85	7.3%
12-23 months	412	35.5%
24-35 months	355	30.6%
36-47 months	140	12.1%
48-59 months	101	8.7%
60-72 months	68	5.6%
Total	1,161	100%

Table 4A. Distribution of New Lead Poisoning Cases by Blood Lead Level in Providence 2003

Blood Lead Level	#Children with Elevated Blood Lead Level for the First Time	Percent of Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time
10-14 $\mu\text{g/dL}$	338	71.5%
15-19 $\mu\text{g/dL}$	84	17.8%
20-24 $\mu\text{g/dL}$	25	5.3%
25+ $\mu\text{g/dL}$	26	5.5%
Total	473	100%

Table 4B. Distribution of New Lead Poisoning Cases by Blood Lead Level Statewide 2003

Blood Lead Level	#Children with Elevated Blood Lead Level for the First Time	Percent of Children with BLL ≥ 10 $\mu\text{g/dL}$ for the First Time
10-14 $\mu\text{g/dL}$	787	67.8%
15-19 $\mu\text{g/dL}$	220	18.9%
20-24 $\mu\text{g/dL}$	76	6.5%
25+ $\mu\text{g/dL}$	78	6.7%
Total	1,161	100%

Table 5A. Prevalence of Lead Poisoning in Providence 1994-2003

Year	# Children with BLL ≥10 µg/dL	Total # Children Screened	Prevalence
1994	3,498	8,771	39.9%
1995	3,161	9,139	34.6%
1996	2,817	8,674	32.5%
1997	2,216	8,678	25.5%
1998	1,574	7,952	19.8%
1999	1,506	7,804	19.3%
2000	1,211	7,365	16.4%
2001	1,294	8,729	14.8%
2002	1,127	8,386	13.4%
2003	831	8,732	9.5%

Table 5B. Prevalence of Lead Poisoning Statewide 1994-2003

Year	# Children with BLL ≥10 µg/dL	Total # Children Screened	Prevalence
1994	7,852	33,907	23.2%
1995	6,835	33,312	20.5%
1996	5,843	32,996	17.7%
1997	4,446	33,647	13.2%
1998	3,437	32,684	10.5%
1999	3,208	32,816	9.8%
2000	2,741	31,382	8.7%
2001	2,813	34,865	8.1%
2002	2,450	34,835	7.0%
2003	1,811	34,130	5.3%

Table 6A. Prevalence of Lead Poisoning by Age in Providence 2003

Age	# Children with BLL ≥10 µg/dL	Percent of Children with BLL ≥10 µg/dL
<12 months	37	4.5%
12-23 months	215	25.9%
24-35 months	230	27.7%
36-47 months	155	18.7%
48-59 months	113	13.6%
60-72 months	81	9.7%
Total	831	100%

Table 6B. Prevalence of Lead Poisoning by Age Statewide 2003

Age	# Children with BLL ≥10 µg/dL	Percent of Children with BLL ≥10 µg/dL
<12 months	86	4.7%
12-23 months	492	27.2%
24-35 months	515	28.4%
36-47 months	322	17.8%
48-59 months	234	12.9%
60-72 months	162	8.9%
Total	1,811	100%

Table 7A. Prevalence of Lead Poisoning by Blood Lead Level in Providence 2003

Blood Lead Level	# Children with Elevated Blood Lead Levels	Percent of Children with Elevated Blood Lead Levels
10-14 µg/dL	551	66.3%
15-19 µg/dL	167	20.1%
20-24 µg/dL	55	6.6%
25+ µg/dL	58	7.0%
Total	831	100%

Table 7B. Prevalence of Lead Poisoning by Blood Lead Level Statewide 2003

Blood Lead Level	# Children with Elevated Blood Lead Levels	Percent of Children with Elevated Blood Lead Levels
10-14 µg/dL	1206	66.6%
15-19 µg/dL	356	19.7%
20-24 µg/dL	121	6.7%
25+ µg/dL	128	7.1%
Total	1,811	100%

For more information contact:

Daniela Quilliam, MPH

Epidemiologist

Rhode Island Department of Health

Childhood Lead Poisoning Prevention Program

Three Capitol Hill

Providence, RI 02908

DanielaQ@doh.state.ri.us

401-222-7730



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